



# Your Energy Future: Competitiveness through Energy Management

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June 20, 2013



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# Agenda

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- Competitiveness through Energy Management Working Group
- Company presentations
  - Airxchange
  - Barrett Distribution Centers
  - Blount Fine Foods
- Q+A
- Mass Clean Energy Center
- Energy Resources





# Who's who

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- Working Group Co-chairs
  - Patrick Madigan and Veda Ferlazzo Clark
- Airxchange:
  - Randy Steele, Vice President & GM
- Barrett Distribution Centers
  - Kevin Testa, Financial Analyst
- Blount Fine Foods
  - Todd Blount, CEO
  - John Cavanagh, Director of Engineering
- Massachusetts Clean Energy Center
  - Galen Nelson, Director of Market Development





# Competitiveness through Energy Management

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- Raise awareness in small to mid-sized manufacturing of potential cost savings through energy management to increase profitability and competitiveness.
- Identify strategic partnerships and resources to educate, provide technical assistance to identify opportunities, and help implement and execute.
- Desired Impact:
  - Manufacturers of all sizes able to realize energy cost savings to reduce operating costs.
  - Overall cost savings of a minimum of 5%.
  - Energy use reduction of up to 30% in target manufacturer population.





# Competitiveness through Energy Management: 2013 Goals

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- Target mid-sized (\$20-60M) manufacturers who own/lease their buildings.
- Establish pilot programs for technical energy assistance and evaluation for cost reductions focusing on greater efficiency, process improvement, etc.
- Establish pilot programs for implementation of measures such as solar energy.
- Explore feasibility of bulk power purchasing.
- Develop marketing program with partners for target audience.





# Competitiveness through Energy Management

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- Our Working Group needs more manufacturing members.
- Please let Patrick or Veda know if you are interested!





Randy Steele  
Vice President and General Manager  
Rockland, MA



- **Founded In 1980**
- **Manufacture Energy Recovery Wheels – Clean Energy Technology**
  - Capture Heat & Moisture From Building Exhaust Air To Pre-Condition Outdoor Ventilation Air
  - Used In Commercial HVAC Systems to Reduce Outdoor Air Design Loads and Energy Costs
- **Industry Leader**
  - Largest Supplier To All Major HVAC OEMs
  - Active In Industry Organizations
- **Proprietary Manufacturing Process And Patented Design**
- **2011 Gold Winner Of Mass Econ Economic Development Award**



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## Facility Expansion



 = New (61,500 S.F.)

 = Existing (33,500 S.F.)



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## Utility Incentives

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- Met with National Grid Account Manager and Construction Project Manager to Explore Efficiency Incentives
- New Construction – Incentives to Lower Energy Use Beyond Base Building Code
- Retrofit – Incentives to Upgrade Existing Facility - Envelope, Lighting and Mechanical Systems
- Custom and Prescriptive Programs
- National Grid Funded Prescriptive Measuring Scope and Applications
- National Grid Gas and Electric Developed Co-Pay Agreement with Airxchange for Study of Custom Measures



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## New Construction

|  | Rebate           | Annual Energy Savings |
|--|------------------|-----------------------|
| ❁ <b>Energy Recovery Ventilation</b> (Custom Gas) <ul style="list-style-type: none"><li>- 1.78 Year Payback After Incentive</li><li>- A/C Equipment Load Reduction – 40 Tons</li></ul> | \$ 44,840        | \$25,220              |
| ❁ <b>High Efficiency Rooftops with VFD Drives</b>  | \$ 24,950        | \$ 5,500              |
| ❁ <b>Optimized Lighting Design</b> <ul style="list-style-type: none"><li>- High Efficiency, High Bay Fluorescents</li><li>- 51% Reduction - Lighting Power Density</li></ul>           | \$ 13,830        | \$14,150              |
| ❁ <b>Automatic Lighting Controls - Occupancy</b>   | \$ 2,650         | \$ 1,300              |
| ❁ <b>R-30 Roof Insulation</b> (Custom Gas) <ul style="list-style-type: none"><li>- 5.6 Year Payback</li></ul>  | \$ 20,000        | \$ 3,570              |
| <b>Total</b>   | <b>\$106,270</b> | <b>\$45,840</b>       |



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|  | Retrofit/Upgrade                  |
|--|-----------------------------------|
|  | Rebate      Annual Energy Savings |

## Existing Factory & Offices

|   |          |          |
|---|----------|----------|
| • <b>Lighting Upgrade</b><br>– 70% Reduction In Watts (30K)                   | \$16,700 | \$ 9,600 |
| • <b>Air Compressor Replacement VFD</b><br>– Rotary Screw, 45% More Efficient | \$10,320 | \$ 8,100 |
| • <b>Variable Speed Drives - Dust Collectors</b><br>– 2 Year Payback          | \$12,150 | \$ 2,500 |
| • <b>Vending Machine Energy Misers</b>  | \$ 585   | \$ 500   |

|       |          |          |
|-------|----------|----------|
| Total | \$39,755 | \$20,700 |
|-------|----------|----------|



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**AIRXCHANGE®**

## Incentive Summary

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- **Energy Study Fee**

- NGrid - Electric      \$ 5,550
- NGrid – Gas            \$ 1,620
- Airxchange             \$ 1,620

- **Energy Efficiency Incentives - \$ 146,025**

- Gas                        \$ 64,840
- Electric                 \$ 81,185

- **Total Annual Energy Savings - \$ 66,540**

- **Average Payback on Custom Measures – 2.4 Years**

- **Estimated Annual Energy Reduction – 30%**



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## Barrett Distribution Centers | 597 kW Solar Project Overview

Kevin Testa – Financial Analyst



# About Barrett Distribution

Barrett has grown to a privately owned network of more than 2.1M sq ft. of state-of-the-art warehousing capacity, strategically located across the US. Our high performance teams serve in an array of industries from fast moving consumer goods to the highly demanding automotive parts and online retail markets.

- Founded in 1941
- Over 100 customers across a broad range of industries
- Innovative culture based on client, supplier and employee relationships
- Focus on customer ROI



System  
Size

597 kW

Panels

2024

Canadian Solar CS6 Modules

Cost/watt

\$3.19



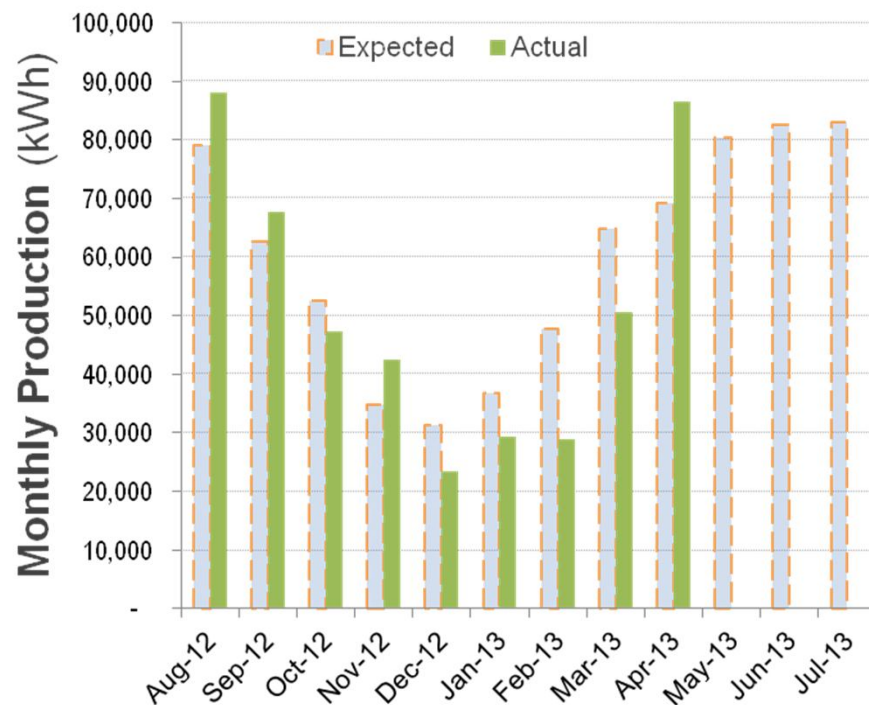
| Company              | Location       | Project Role              |
|----------------------|----------------|---------------------------|
| Nexamp, Inc.         | N. Andover, MA | Solar EPC                 |
| Glynn Electric       | Plymouth, MA   | Electrical Contractor     |
| Solectria Renewables | Lawrence, MA   | Inverter Manufacturer     |
| PanelClaw            | N. Andover, MA | Solar Racking             |
| Sika Sarnafil        | Canton, MA     | Roof Membrane             |
| A&M Roofing          | N. Andover, MA | Roof Installer            |
| OMG Roof Products    | Agawam, MA     | Roof Fasteners            |
| Heilind Electronics  | Wilmington, MA | Electrical Infrastructure |
| BMC Engineering      | Middleton, MA  | Structural Engineer       |
| CEG Engineers        | Hopedale, MA   | Electrical Engineer       |

# Production Overview

|                              |             |
|------------------------------|-------------|
| Estimated Total Production   | 725,100 kWh |
| Estimated Production to Date | 543,749 kWh |
| Actual Production to Date    | 536,090 kWh |

## Production to Date

System Commissioned 7/13/2012



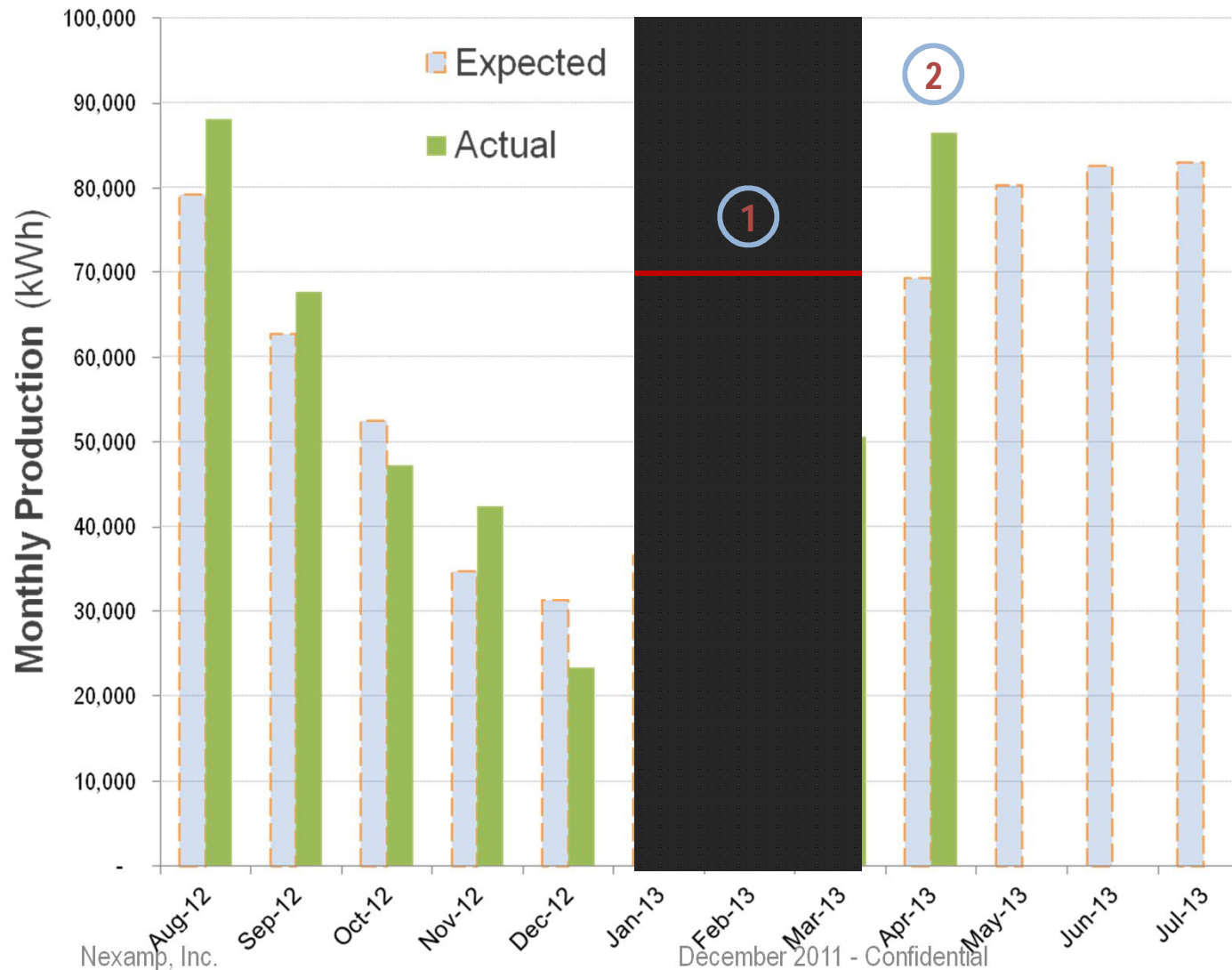
**43,423**  
gallons of gas saved

**9,650**  
trees planted

**380**  
tons of CO<sub>2</sub> saved

## Production to Date

System Commissioned 7/13/2012



## NOTES

1

Nexamp biannual maintenance inspection (conducted April 10, 2013) revealed that **5** defective modules were impacting production across five separate array strings.

2

Production deficiency issues should be resolved following replacement of modules under warranty.

Federal Tax  
Grant

\$554,785

Value of Bonus  
Depreciation

\$398,270

Expected  
Savings

\$97,000

2012 SREC  
Revenue

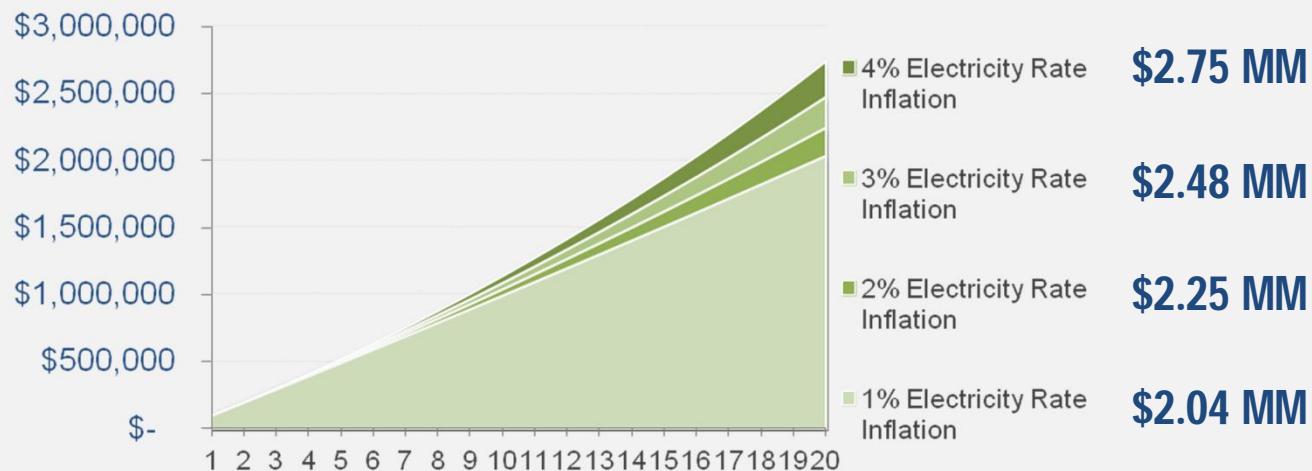
\$310/SREC

First Year  
Recovery

60+%

Estimated  
Cumulative  
Electricity  
Savings

**Cumulative Savings**



9 Year  
SREC Value

Will fluctuate! Estimate: ~\$200/SREC

Estimated Project  
ROI

20%





# Nexamp Overview

As a leading solar independent power producer, Nexamp develops, builds, owns, and operates distributed and utility-scale solar projects. Nexamp delivers integrated solutions – from project development and financing through construction and asset management – to ensure that our clients and partners maximize the value of their solar energy investments.

- Founded in 2006
- Largest, most experience solar company headquartered in Massachusetts
- Over 22 MW installed or under construction
- Over 150 projects completed for Massachusetts clients, including Boston Properties, Cathartes Private Investments, Barrett Distribution, General Mills, Greater Boston Food Bank and many others.

Experienced Team



Integrated Solutions



Proven Results





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Todd Blount – President

John Cavanagh – Director of Engineering



# How Blount identified the need

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- Blount Corporate Sustainability Programs.
- Large Capital Projects for food processing and refrigeration.
  - Evaluated options to afford best in class equipment.
  - Secondly, looked toward reducing monthly electric invoice.





# Blount Corporate Sustainability Commitment and Capital Investing

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- Blount est. 1880, highest quality products.
- Commitment to energy & utility conservation is a competitive advantage.
- Customers value our sustainability results.



# Blount Corporate Sustainability Commitment and Capital Investing

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- SOLAR (100 KW)
- Energy Rebates
- Energy Contracts



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# Energy Rebate Program

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## PROCESS

- Worked with engineers and equipment vendors to recommend best equipment to fit program.
- Learned about National Grid Program.
- Hired Design 2000



# Energy Rebate Program

**Design 2000** *plus*  
Custom Measures

**nationalgrid**

- Ammonia Refrigeration Compressor VFD System
  - Base Case Cost = \$166,000
  - Proposed Case Cost = \$244,000
  - Estimated Incremental Cost = \$78,000
- **Authorized Incentive = \$70,170.**



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# Electrical Bidding and Contracting

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- Looked to lock in price for extended time. (Electricity cost, not delivery)
- Worked with our Natural Gas contractor: Hess
- Evaluated time horizons and cost offers
- Now using online auctions



# Electrical Contracting Savings

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- Energy Contracts
  - Achieved electrical supply pricing reduction of over 10%  
**(\$65k/year savings)**





Galen Nelson  
Director of Market Development  
@galennelson  
617.315.9375  
gnelson@masscec.com

# Energy Efficiency

- MassSave [www.masssave.com](http://www.masssave.com)  
**\$1.65M** available for C&I sector!
- Northeast Clean Heat Application Center (for Combined Heat and Power, Waste Heat Recovery, Process Efficiency studies)  
[www.northeastcleanenergy.org](http://www.northeastcleanenergy.org)
- Mass. Office of Technical Assistance
- Commercial HEAT loan





# Renewable Energy

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## Why?

- Cost effective
- Reduce fossil fuel consumption /  
Keep energy dollars local
- Climate change
- Reduce peak demand charges
- Supply chain pressures



Boston Sand & Gravel



# Mass Clean Energy Center Resources

Feasibility studies & construction grants

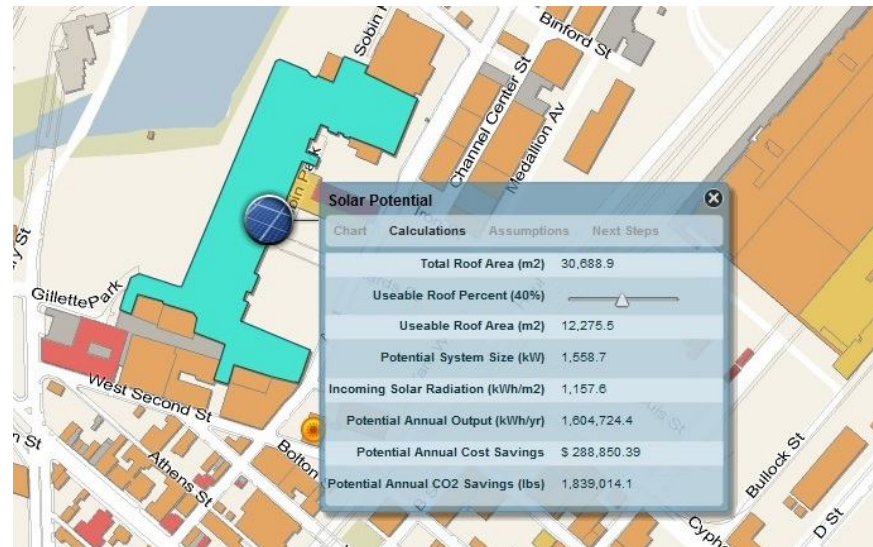
- Wind power
- Hydro power
- Solar thermal



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# Looking Ahead

- MassSave Challenge
- Technical Assistance, energy efficiency
- Bulk Buying
- Solar PV for Manufacturers





# QUESTIONS?



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# Bulk energy purchasing

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- A question for manufacturers





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Thank you for  
your participation!



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# Competitiveness through Energy Management

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